Architectural Thesis

Designs

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FIFTY ARTISANS' HOMES

...BY...

RAYMOND CRAVER RICKER

THESIS

FOR THE DEGREE OF BACHELOR OF SCIENCE

IN ARCHITECTURE

IN THE

College of Engineering

OF THE

UNIVERSITY OF ILLINOIS

PRESENTED JUNE, 1900

UNIVERSITY OF ILLINOIS

June 1, 1900. 190

THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

Raymond Craver Ricker

ENTITLED Fifty Artisans' Homes

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE

OF Bachelor of Science in Architecture.

N. C. Ricker.

HEAD OF DEPARTMENT OF Architecture.

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The Design.

In studying the problem, the aim has been to design houses which should be of moderate cost, convenient and economical in arrangement, simple and attractive in appearance: homes for the average American workingmen. The shingled house seems to fulfil these requirements, and is the style of cottage used.

The houses are intended either for sale or for rent. The average cost of this type of house, under ordinary prices of materials, is about $2.50 per square foot of ground covered, exclusive of porches. The land is purchased and the houses erected by the corporation, so the prices on all the work are reduced to a minimum. For this reason it seems safe to assume that a price of $2.40 per square foot covers cost of the house complete, and all improvments on the lot. The cost of land of course varys greatly for different localities, but probably would not exceed $500 per acre, even adjoining a town or city of considerable size. The plot contains ten acres and is divided into lots 100 feet deep by 33⅓ to 100 feet front, with the exception of a small park or playground, 200 feet square, in

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the center of the group and a 100'x100' lot for the Assembly Hall which together with the streets are to be considered as public improvements and must be paid for by the lots themselves.

Cost of Land:

10 acres @ $500	$5000.00
Construction of streets @ $2 per lineal foot	4600.00
Concrete walks on streets - 21110 sq.ft. @ 15¢	3178.50
Sewers, per lot $20.00	1080.00
	$13858.50
10% for subdividing and transfers	1385.85
Total	$15244.35

Available building front = 2800 feet = $5.44 per foot front. The corner lots are rated at 50% higher price.

Rent is based on the cost of the house only, except in the case of the corner lots, for the appreciation of the land will double its value in twenty years, which is equivalent to 5% interest on the investment. The 50-foot corner lots rent at 1% more, and the 66 2/3 foot corner lots at 2% more than intermediate lots; also the two 100 foot lots at the N.E. and N.W. corners of the group rent at 2% additional. In all cases 5% is allowed for maintenance, and rents are figured on a basis of 3%, 4% and 5% profit. There are 41 cottages, accommodating 48 families, the remaining two apartments bring over the stores.

Data.

Type.	Area*	Cost of House.	Lot		Total cost of Property.	Rentals†						no. living rooms	Height of Story.		Construction	
						10% Basis		9% Basis		8% Basis.						
			Front.	Cost.		year.	mo.	year.	mo.	year.	mo.		1st.	2nd.	1st. S.	2nd S.
A.	1062	$2548.80	50'	$408.00	$2956.80	$280.37‡	$17.37	$254.88	$21.24	$229.39	$19.12	8 including large hall.	9'-0"	8'-6"	Frame	Shingle.
A_1	"	"	$66\frac{2}{3}$	483.55	3032.35	305.86‡	25.49	280.37	17.37	254.88	21.24					
A_2	"	"	100	544.00	3092.80	305.86‡	25.49	280.37	17.37	254.88	21.24					
B. (double)	654	1569.60	$33\frac{1}{3}$	181.33	1750.93	156.96	13.08	141.26	11.77	125.57	10.46	4	8'-6"	8'-0"	Brick	"
B_1	"	"	$37\frac{1}{2}$	204.00	1773.60	156.96	13.08	141.26	11.77	125.57	10.46					
C (double)	748	1795.20	$37\frac{1}{2}$	204.00	1999.20	179.52	14.96	161.57	13.46	143.62	11.97	4	9'-0"	8'-6"	"	"
C_1	"	"	50	272.00	2067.20	179.52	14.96	161.57	13.46	143.62	11.97					
D	840	2016.00	50	272.00	2288.00	201.60	16.80	181.44	14.29	161.28	13.44	6	9'-0"	8'-6"	"	"
E.	630	1512.00	50	272.00	1784.00	151.20	12.60	136.08	11.34	120.96	10.08	4	8'-6"	8'-0"	Frame	"
F.	867	2080.80	50	272.00	2352.80	208.08	17.34	187.27	15.61	166.46	13.87	6	8'-6"	8'-0"	"	"
G.	900	2160.00	50	272.00	2432.00	216.00	18.00	194.40	16.20	172.80	14.40	7	9'-0"	8'-6"	Brick	"
H.	865	2076.00	50	272.00	2348.00	207.60	17.30	186.84	15.57	166.08	13.84	5	8'-6"	8'-0"	Frame	"

* Area = ground area of house + $\frac{1}{3}$ area front porch + $\frac{1}{4}$ area back porch.

† 5% allowed for maintenance. 5% 4%. and 3% profit.

‡ 50' lot figured at 11%; 10%; 9%; $66\frac{2}{3}$' lot at 12%; 11% and 10%; 100' lot at 12%; 11%; 10%.

The company erects the Assembly Building for the free use of its employees. This building contains a library, a gymnasium an auditorium for 250 people, kindergarten, day nursery, club rooms, etc. The hotel and store building contains, on the first floor two large dining rooms with complete service rooms and four store rooms, which will rent at $20 per month. On the second floor there are 22 rooms to be rented singly to employees; also the two family apartments, which will rent for $15 per month.

Following are a number of abstracts from published articles on Workingmen's Homes, with references to the articles.

How Workingmen Live in Europe and America.
By Lee Meriwether. Harper 74: 780.

The cost of living is greater in America than in Europe: twenty per cent greater than in Great Britain; twice as high as in France; and three times as expensive as in Italy.

In Italy skilled mechanics rarely earn one dollar a day and unskilled labor is sometimes paid as low as seven cents per day of fourteen hours. The Italians often have but one room for living-room, kitchen, and shop or workroom, and the average rent they

pay is $12 to $15 per year. A stone mason may have a more desirable home — more sunshine and air — and pay as much as $18 a year. The majority live in basements and on the ground floor, while a few are able to have third or fourth story rooms. Unmarried workingmen, if not living at home, live in lodgings where a bed costs three or four cents a night. Meals are taken at a restaurant, where simple, plain food is obtained very cheaply.

The Italians are a very economical people, and very content with their lot in life.

The cost of living is slightly greater in Switzerland than in Italy.

The German working classes are excessive beer drinkers. The average quantity of beer drank is four glasses per day to every man, woman and child. Many spend nearly one fourth of their wages on beer. Yet the cost of living is lower in Germany than in Italy. Mill hands are sometimes boarded by the company. In one place a number of two-story houses are ranged about a small park. Each house contains two floors, with four rooms to the floor, and the rent of two of these rooms is 36 cents a week or $18.72 a year. An entire floor of four rooms costs 72 cents a week, or $37.44 a year.

The average wages of Belgian workmen are not over 60 cents a day. Glass blowers sometimes earn as much as $3 per day. French workingmen are very economical in their mode of living.

The English workman earns better wages than any of the others. His standard of living is higher, and lodgings and food are better, but probably he is no more contented than the Italian or Frenchman. The English laborer of any skill at all receives $1.00, and a good mechanic $1.50 per day; but operatives in mills receive less wages and live more economically. Operatives in Yorkshire live mostly in separate houses, which are made of brick, and have small front and back yards. The lower floor contains two rooms, fourteen feet square, and the second story has one good sized room and an apartment over the hall. The lower front room of the house is often used for kitchen, parlor, and dining room combined. They pay 50 cents to $1.00 a week for rent, and gas costs 54 cents per M feet and coal from $1.80 to $3.60 per ton. Provisions are as cheap or cheaper than in America.

Workingmen's Colony at Essen Germany.

C.A. Blackall, Amer. Arch. 19:207 (1886)

There are upwards of 3000 tenements occupied by

employees of Herr Krupp at Essen, and there are over 65,000 dependent on the works for support. The tenements are in colonies, seven in number, the largest of which contains 248 tenements. The houses are grouped as near the entrances to the works as possible. The colonies belong wholly and entirely to Krupp — land, streets, houses, ground water mobilies, stores and all.

The houses must be close to the shops, so the block system is used. Blocks have from three to ten houses, mostly three stories high. The walls are of common brick; under each house is a clean, dry cellar 6.3 feet high used only for the storage of fuel. The houses have wood floors, plaster walls painted in oil colors, stone stairs, tile roofs; no open fire-places, but usually a flue to two rooms, and one water closet to two flats. First and second stories 9'-8" to 10'-5" clear hight, and third stories 8'-4" to 9'-6". The houses are mostly tenements with two or three rooms each and all the rooms have about 100 square feet area. Very few houses have over or five rooms to the tenement.

There are water mains in all streets, and hydrants on all corners, for tenants' use, but no house supply. Streets and all hallways, as well as new larger tenements, are lighted by gas. Tight cesspools, which

are cleaned at regular intervals, are used instead of sewers.

There are different types of houses, some of which are repeated many times. Each block has a small plot of ground about thirty feet square for cultivation and grass plot. In the center of the colony is an extensive market place. The houses in these colonies are very homely; and some of them are gloomy and miserable in appearance, having no garden or grass plot whatever. Rents of tenements vary from 60 to 1200 marks per year: 60 to 90 in "Barackenwohnung" without cellar or yard; 90 to 108 for two rooms with cellar, etc; 120 to 162 marks for three rooms: 180 for four rooms; 210 for five rooms. The average price of a workingmen's tenement is about 108 marks or $27 a year. The rent of houses for superintendents and clerks averages $82.50 per year. No houses are sold, or lease granted for more than a year. Rent is collected from wages every two weeks.

Krupp furnishes everything: food, furniture, clothing, etc, at nearly cost price. The quality of goods is the best the market affords. Profits of sales are used entirely for the benefit of the workmen, directly or indirectly. Each colony has restaurants for the exclusive use of Krupp workmen. The price

is so low that a man can be amply provided for 27½ cents a day.

Schools are provided hospitals, and wards for contagious diseases; pensions for the aged and infirm; and accident insurance funds. Free medical service is provided under certain restrictions; large bathing houses — plain bath 4 cents, vapor bath 25 cents. After children are educated, the most promising are received as apprentices and a limited number of these who show special aptitude are sent to an engineering school at the expense of the establishment.

Everyone is satisfied: there are no strikes, and some of the men have been with the company thirty-five years. At Schio colony, Italy, and Mülhausen, France, each man is his own master. The houses are either sold or rented. The people are well educated.

A Visit to Improved Dwellings for Working Classes.
Chambers Journal 12:11. (1849).

Working men's Dwellings at Somer's Town, St. Pancras. There is a large brick building, consisting of center and two advancing wings, with courtyard in front. The building looks too much like a factory or workhouse, and fails to separate the working people

into a caste "to be done for" by kindly disposed people.
The building has no sunk story, and is six stories high. The entrance is from the courtyard which is enclosed by an iron railing, and is by a common stairs from which the different floors are reached. The stairs and passages are narrow, and the walls from top to bottom are unplastered: the bricks being whitewashed. On every landing are three or four doors to as many separate buildings. Entering one of these apartments the first room seems half room and kitchen. One must pass thro the kitchen to get to the bedrooms. In one class of houses, the sitting room, which is also used as a kitchen, measures 14'x 10-6"; bedroom 12'-11" x 6'-10"; bd closet 12'-11" x 3' 7". The kitchen has a range with small boiler and oven. Each apartment has water sink etc, and dust shafts deposit into holes beneath the ground floor. The watercloset opens off the sitting room. The finish is very plain and cheap. There are one hundred ten distinct houses in the building, or thirteen to fifteen houses in each of the eight stairs. The rent is as follows:

2 rooms	3s 6d to 5s per week.
3 rooms	4s 9d to 6s 3d per week.

These charges include water and all taxes and rates. This rate is relatively low with those of the densely

crowded districts of London but high in relation to what ought to have been, by prudent management, the outlay on their construction in such a situation. The building is owned by the Metropolitan Association for Improving Dwellings of Industrial Classes incorporated 1845. The buildings are well occupied but as yet (1849) do not realize 5% on the investment. The Association has put up another building containing a lecture room and school room, office, room, cook's shop, and other accommodations for general use.

Where do Workingmen live?

Lambeth Journal 2:58 (1845).

About 1850 the average rental of all houses occupied by middle and working classes in London was about ½ £ per room per annum, exclusive of rates and taxes (Rents are higher now). Old Waterloo's cluster in Paul St., Finsbury, consists of sets of apartments renting at 5s 6d to 6s 6d, 5s6d per week, replete with every convenience. All the rooms were occupied. Such rentals are too high for many workingmen.

Another group, called the Corporation Buildings, was put up by the city authorities. The group looks well, occupies space 60 x 40 feet and accommodates

one hundred seventy families, provide twelve large shops on the ground floor and basement rooms beneath. Four stair cases lead up to five floors of living rooms. Each of the better tenements, estimated at 7/5 of a week, comprises a lobby, living room, bedroom, a third room or rather parlor or redroom, scullery with range and copper, coal cellar dust shaft, etc, and a small balcony. On a higher floor, and with all accommodations equal but one room less rent is about 4/5 of a week, and other sets of rooms between the extremes. The object of this building was to provide healthful and comfortable homes, and get a moderate interest on the investment.

The Committee of the Society of Arts passed these resolutions: "That by proper attention to economy, by building only to the extent required by each district and by the utmost care in avoiding unnecessary outlay in preliminary expenses, proper dwellings for laboring classes can be provided, which shall realize a fair dividend on the capital expended. That, altho in rural districts, commonly speaking, the pecuniary return for capital invested in laborers' dwellings, considering the rate of wages, general circumstances, and cost of repairs, can only be moderate, yet may be regarded as satisfactory, when the consequent improvement in character of the

occupants, their comfort health, and the additional value of their labor are taken into account. Lord Stanley's enterprise realizes 5%, others not over 3%.

A cottage system is in use at Hastings: 155 cottages are occupied by 183 tenants. The cottages cost £17000, and the return is a little over 5%. The Scotch plan is to have well arranged shops on the ground floor, and each upper floor a distinct flat or tenement.

Healthy Homes for Working Classes.

David F. Schloss. Fortnightly Review. 49:526 (1888).

Whatever is done in housing the people must be in such a manner that the capital invested shall bring in a reasonable return to the investor.

Below are tables showing the investments and returns on model dwellings erected in London by leading companies. In these tables the value of land is calculated on a freehold basis; in case of leaseholds the value of the freehold is calculated on a footing of twenty years' purchase.

Table I

Building.	Cost per room for land and building.	average rent per room per week.	Rate of interest at present earned.
	£. s. d	s. d.	£. s. d.
Streatham Street model Buildings	72 4 0	2 5½	4 17 6

Table II.

Building	Cost per Room for Land and Building	Average rent per room per week.	Rate of interest at present earned.	Remarks.
	£. s. d.	s. d.	£. s. d.	
Albert Family Dwellings	48 11 4	1 6	5 6 3	
Farrington Mews "	127 10 0	2 10 1/3	3 6 3	In Mayfair. Site very costly.
Enfield Buildings	11 4 0	2 0 3/4	4 0 0	
Farrington Road Bldgs	67 3 8	2 3 1/4	5 17 6	
Gatliff Buildings.	57 13 5	1 9 1/4	5 7 6	
Gibson " .	65 16 3	1 9 3/4	3 5 0	
Hamilton Square	53 1 0	1 7	5 5 0	
Ingestre Buildings	69 0 0	2 1	5 8 9	
Pancras Square	48 2 5	1 9 1/2	7 0 0	

Table III.

3 estates in N. London	66 10 1	2 2*	5 10 4	* Includes some weekly shop property.
3 estates in S. London	64 1 5	1 10 1/4†	‡ 4 6 0	† Many empty dwellings in S. still more in E. London The cheaper the dwelling the more difficult to keep occupied.
3 estates in E. London.	57 3 5	1 7†	‡ 3 10 5	‡ Rates + taxes, repairs, insurance, water and other outgoings heavier in E + S than in N. + W.
3 estates in W. London.	59 2 5	1 11	6 15 10	

Table IV.

Building.	average cost per room for land & building.	average rent per room per week.	average rate of interest at present earned.	Remarks.
	£. s. d.	s. d.	£. s. d.	
Katharine Buildings*[1]	71 0 0	2 9½	4 0 0	*About 35 tenements in this block on an average vacant in 1887.
Lolesworth Buildings[1]	73 13 0	2 10†	4 0 0	†Includes two tenements, each consisting a shop & parlor, let at 15 s and 17 s per week.

[1] A majority of rooms in these two blocks are unusually large each being intended to accommodate an entire family; hence their greater cost and higher rents.

Table V.

Charlotte de Rothschild model dwellings.	60 15 0	2 3	4 0 0	

These results are excellent and provide homes within the means of most men engaged in any sort of employment fairly regular, tho not continuous, in its nature.

For data concerning homes in crowded districts, where tenement blocks must be used, see Fortnightly Review 49: 530, 531.

Workingmen's Homes in the City of Ulm, Bavaria.

Jno. F. Crowell, Outlook, 16 Sept. 1899. p 100 et seq.

The growing population combined with industrial expansion in Ulm brought about such inadequate and unreasonable conditions of living that the city undertook an experiment in providing homes for the working people. The two large double dwellings erected first were each 3½ stories high, and divided into family apartments, consisting of two rooms, a kitchen, a pantry, a cellar, and a woodroom. For every four families there was a laundry. Back of the houses lay a garden plot so divided as to give each family a garden of its own. These houses were immediately occupied and as more of such dwellings were demanded, two more of the same kind were immediately begun. But the financial resources of the German working classes are by no means equal to those of corresponding classes in England and the United States; and there are no such savings bank reserves as characterize the American workmen. Consequently self help soon reached its limits for want of funds. The city then undertook to build on a smaller scale houses which workingmen could buy. In this set of houses each contained two apartments, in each of which apartments there was one large living room, one bedroom,

kitchen, pantry, cellar, woodroom, and laundry. The average cost of each house, including the cost of the lot, amounted to 5500 marks or $1375.

When the occupant desires to own the house he lives in, it is turned over to him upon certain conditions: he pays 3% on the cost of the house and 2½% more on account of a sinking fund. Together these payments are less than usually paid for rents alone for much inferior accommodations in crowded portions of the city. In twenty three years he will be the unencumbered possessor of the home. He must, however, pay 10% of the capital cost down upon receipt of the title as occupying owner. Where the occupant is not a purchaser, the rent is from 130 to 140 marks per year.

This wise and provident policy has borne gratifying fruit. There is a greater degree of contentment among these families owning their own houses. A most favorable improvement in the conditions of family life has been achieved and a much higher standard of health of men, women, and children has resulted; so that on the strength of these results the city has erected more houses for the same class of families.

The Factory Village System in New England.

– Studies of Factory Life. Atlantic Monthly July '88.

Houses erected in late years have water supply, and the best system of sewerage the character of the ground and the streams will permit. They rent usually at 3 to 4% of their cost, while outside tenements rent from 8 to 10%. Responsibility as to sewage disposal, and similar cares are usually upon very few persons – the heads of the corporations. First class sewage disposal is necessary when water is supplied to the houses, for malaria and disease are prevalent when improper provision is made.

A general rule is that the number of persons in a family furnished to the mill must bear some proportion to the size of the tenement held, but the rule is not rigid if there are plenty of houses. This rule, sometimes necessarily enforced, may break up long formed relations of friends and neighbors, or throw aged parents out of their home after the children leave it. This is one evil of the factory village system when the houses are owned by the corporation.

The Shattuck Competition.

In 1898 the Mass. Charitable Mechanic Association of Boston offered prizes for designs for artisans' homes.

one a limited competition; fifteen eminent architects of the country were invited, and eleven accepted the invitation, to join in the contest. The second competition, open to all, was accepted by about forty prominent architects located throughout the country.

Part of the designs were worked out on the block system part on the cottage system. Most of the designs show careful study in planning and in consideration of the scheme from a pecuniary, as well as a philanthropic standpoint. The prize in the cottage system was won by the firm of Geo. A. Barton and Geo. G. Hill of Boston.

The drawings were reproduced in the American Architect, (vol. 62) for 1898. See report on the competition, Amer. Arch. 62: 80.

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